THE SOURCE

NEWSLETTER OF THE NHDES DRINKING WATER SOURCE PROTECTION PROGRAM
ON THE WEB AT *WWW.DES.NH.GOV/DWSPP*

FALL 2006

Source Water Protection Needed to Minimize Risk of Illness from Drinking Water

Even with treatment systems in use today in the United States, experts estimate that drinking water from community water systems causes between 4 and 16 million cases of acute gastrointestinal illness (AGI) per year. That's 1.5 to 6 illnesses per 100 customers of community water systems each year. This estimate does not include all illnesses caused by drinking water, but rather focuses on AGI as a broad indicator because it is easy to recognize. These results underscore the need for continued attention to source water protection as well as treatment.

The 1996 amendments to the federal Safe Drinking Water Act directed the U.S. Environmental Protection Agency (EPA) and the Centers for Disease Control and Prevention (CDC) to conduct a number of studies, including developing a national estimate of waterborne disease occurrence. The results of these studies to date have been published in a special issue of the *Journal of Water and Health* (July/August 2006), and can be viewed online at www.epa.gov/nheerl/articles/2006/waterborne_disease.html.

"Although the risks today may not be as grave as they once were, the multiple barrier concept of source water protection and water treatment and sanitation introduced early in the 20th century continues to be important in the prevention of waterborne disease," according to the EPA and CDC experts.

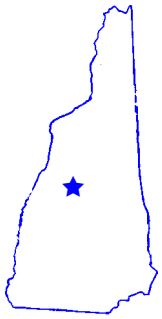
The estimates of waterborne disease incidence may surprise many water suppliers and local health officials, because known outbreaks of waterborne disease are relatively rare. However, the EPA-CDC studies indicate that the true incidence of waterborne illness is greater than is reflected in statistics regarding disease outbreaks. Not all waterborne disease outbreaks are recognized, let alone reported and investigated. The EPA and CDC experts agreed that the number of illnesses associated with waterborne disease outbreaks reported in the U.S. is probably small compared with endemic (non-outbreak) illness.

While water supply treatment processes are designed to reduce the threat from known waterborne pathogens, the potential threat from unknown and emerging pathogens is cause for continued attention to multiple barriers, including source water protection. As noted by the EPA-CDC investigators, "We should also keep in mind that current technologies may not be adequate for emerging waterborne pathogens and that sporadic cases of waterborne illness may occur even in some systems that meet current standards and regulations."

Maintain Restrictions on Swimming in Water Supply Lakes, Expert Urges

A national expert on waterborne disease urged the New Hampshire Water Council to maintain existing swimming restrictions on water supply water bodies because of the risk to public health. Dr. Jeffrey Griffiths of Tufts University School of Medicine, a member of the National Drinking Water Advisory Council and EPA's Science Advisory Board, testified on July 12 and August 9 at a hearing regarding swimming at Canobie Lake, the primary water supply source for the Town of Salem. The Council was considering a request by two waterfront landowners for a waiver to the swimming prohibition in DES rules (Env-Ws 386) for Canobie Lake. Dr. Griffiths explained that swimming is a source of fecal contamination, that the incidence of cryptosporidiosis is grossly under-reported, that feces from an infected person contains over 10 million oocysts (the life cycle of *Cryptosporidium* capable of transmitting the disease) per gram, that the oocysts are not completely removed or inactivated by conventional treatment, and that ingesting one or two oocysts can make people sick. The Water Council denied the waiver request, keeping the swimming prohibition in place. Approximately 426,000 New Hampshire residents drink water from surface water sources that are partially or fully closed to swimming under Env-Ws 386.

Spotlight on ... Canaan



Plan Calls for Land Use Controls to Protect Public Water Supply

By Heidi Brannon, Granite State Rural Water Association

The Canaan Drinking Water Protection Committee has recommended a two-tiered watershed protection area for the town's sole source of public water supply, Canaan Street Lake. The town of Canaan recently completed a watershed protection plan for the lake, culminating a process that began in March 2006, when the Board of Selectmen appointed a group of local stakeholders to serve on the committee and invited Granite State Rural Water Association (GSRWA) to help facilitate the planning process.

One of the first steps in developing the plan was taking a watershed tour. The tour examined land use activities in the watershed and considered how they could potentially impact water quality. The committee also reviewed Volunteer Lake Assessment Program water quality data and DES's source water assessments to more clearly identify threats to the lake. The Committee then focused its efforts on four types of threats: (1) transportation, (2) septic systems, (3) recreational uses, and (4) lack of land use management.

While recommendations in the plan address all of the potential threats, a challenge encountered by the Committee was managing land use without a local zoning ordinance. The Committee realized that without effective land management tools, the watershed is open to land uses that could jeopardize Canaan Street Lake. As a result, the Committee strongly supported establishing a two-tiered watershed protection area:

- Watershed Protection Area – Within the entire Canaan Street Lake watershed, the committee recommended prohibiting contaminating land uses, addressing stormwater management, and limiting impervious cover.
- Shoreland Protection District – Within 50 feet of the lake and its tributaries, the committee recommended a higher level of protection, using the Shoreland Protection Act for guidance.

Although Canaan does not have a local zoning ordinance now, the town is working towards drafting an ordinance to guide future development. The Drinking Water Protection Committee is working closely with the Planning Board to ensure that the zoning ordinance includes its recommendations to protect Canaan Street Lake.

For more information regarding the Canaan Street Lake Watershed Protection Plan, please contact John Bergeron, Canaan Drinking Water Protection Committee at (603) 523-9621 or GSRWA at (603) 753-4055.

Grant Funding Opportunities

The State Conservation Committee is seeking grant applications from towns, cities, nonprofits, and other organizations engaged in natural resource conservation projects. Approximately $200,000 is available; applications are due November 17, 2006. For further information please visit www.mooseplate.com/grants/sccgrant/NHSCCgrant.html or contact Michelle Tremblay at (603) 796-2615.

DES's Local Source Water Protection Grant Program is seeking grant applications from water suppliers, municipalities, and other organizations to implement programs to protect public drinking water sources. Approximately $200,000 is available for grants up to $15,000 each; applications are due November 1, 2006. For further information, please visit www.des.nh.gov/grants_loans.htm or contact Johnna McKenna at (603) 271-7017 or jmckenna@des.state.nh.us

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The Dollars and Sense of Water Supply Land Conservation

A study by the Trust for Public Lands (TPL) and the American Water Works Association (AWWA) demonstrates that conserving land to protect drinking water quality makes good economic sense.

The study of 27 surface water supplies found that the more forest cover in a watershed, the lower the treatment costs. In fact, for every 10 percent increase in forest cover, treatment and chemical costs decreased approximately 20 percent. The watersheds studied had from 10 to 60 percent forest cover.

The results of the study are reported in TPL/AWWA's *Protecting the Source: Land Conservation and the Future of America's Drinking Water* (2004), available at www.tpl.org.

The cost-effectiveness of source water protection has been shown by earlier studies as well, including *The Costs of No Wellhead Protection in Maine* (Emery and Garret Groundwater, Inc., 1993) and *Benefits and Costs of Prevention: Case Studies of Community Wellhead Protection* (US Environmental Protection Agency, 1996).

Studies such as these should help water suppliers justify investments in source water protection, and in land conservation in particular. For more information or to obtain copies of these reports, please contact Holly Green, Water Supply Land Grant Program Coordinator at (603) 271-3114 or hgreen@des.state.nh.us.

Stormwater Management for Water Suppliers

The University of New Hampshire campus in Durham will be the site of this year's New England Water Works Association Water Resources Forum on October 12 and 13. Water suppliers, planners, and consultants will gather to share the latest information on the importance of stormwater management in maintaining the yield of watersheds and aquifers, and in safeguarding water quality.

Topics will include stormwater quantity and quality, flood skimming and aquifer recharge, approaches to site planning, appropriate treatment methods, and stormwater utilities. The meeting will include a tour of UNH's stormwater technology center, where conventional and innovative stormwater treatment technologies are tested side-by-side to measure their ability to remove pollutants, moderate discharge volumes, and recharge groundwater.

For more information or to register, please visit www.newwa.org or call (508) 893-7979.

Welcome Aboard

The Drinking Water Source Protection Program said farewell to Karla McManus and Ben Gauthier this summer. However we are happy to welcome Holly Green and Yvette Meunier to the group.

Holly Green is responsible for developing and administrating the Water Supply Land Conservation Grant Program and the Water Supply Engineering Bureau's Administrative Rules. Holly can be reached at (603) 271-3114 or hgreen@des.state.nh.us. Holly has worked with the Department for 18 years in the Waste Management Division.

Yvette Meunier is assisting with the Chemical Monitoring Waiver Program and the Groundwater Discharge Permitting and Regulation Program. Yvette can be reached at (603) 271-0657 or ymeunier@des.state.nh.us. Yvette is a recent college graduate.

Planner's Conference Includes Water Resource Track

The Annual Conference of the Northern New England Chapter of the American Planning Association (NNECAPA) will be held September 21 and 22 in Meredith. NNECAPA is a professional organization comprised of planners from Maine, New Hampshire and Vermont.

The conference will include an environmental and water resource planning track with workshops on the University of New Hampshire's stormwater research center, protecting water quality through site plan review, and state-of-the-art erosion control and stabilization.

For more information about the conference, please visit www.nnecapa.org/events.html.

A Fast and Clear View of Local Source Protection Efforts

This fall DES will release the state's first drinking water protection database that includes a detailed inventory of municipal shoreland and groundwater protections within zoning, site plan and subdivision rules. The database includes a GIS (geographic information system) component that will allow municipal officials and water supply managers to quickly view the type and location of local protections across municipal boundaries. The database is based on a statewide review of available zoning and rules and includes over 70 different data fields concerning shoreland and groundwater protection provisions, including:

- Prohibitions of high-risk land uses (including USTs/ASTs).
- Maximum percentage of impervious surface.
- Minimum septic system setback distances.
- Lower density requirements (building lots, septic systems).
- Minimum shoreland buffer distances and erosion controls.
- Required compliance with Env-Ws 421 (BMPs for Groundwater Protection).

One primary use of the database will be to assist planners and water suppliers in identifying gaps in zoning protections for their water supply sources. Planning board members or conservation commissioners can compare and evaluate the current level of groundwater and surface water protection in neighboring communities and draft future protections that are more consistent across community boundaries or address gaps in protection. Water suppliers can adjust their source protection efforts to areas within communities identified as having few local protections. For example, if a portion of a wellhead protection area falls within a community with limited groundwater protections, water suppliers could increase the frequency of BMP inspections at potential contamination sources, coordinate land purchases, target additional public education or increase the frequency of sampling completed as part of their monitoring programs.

The database was completed with United States Environmental Protection Agency funding assistance through the Groundwater Protection Council.

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